WHAT IS CLAIMED IS:

1. A composite metal seal comprising a core of relatively hard metal, and at least one annular region of relatively soft metal that is integrally bonded with the core of relatively hard metal and that provides an annular sealing surface for effecting a fluid pressure seal.

2. The composite metal seal as claimed in claim 1, wherein the annular region of relatively soft metal has a thickness in said radial direction of at least one-eighth ~~of an inch.~~

3. The composite metal seal as claimed in claim 1, wherein the core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the annular region of relatively soft metal.

4. The composite metal seal as claimed in claim 1, wherein the annual region of relatively soft metal is welded onto the core of relatively hard metal.

5. The composite metal seal as claimed in claim 1, wherein the annular region of relatively soft metal has at

least one annular groove in the neighborhood of the annular surface of the annular region of relatively soft metal.

6. The composite metal seal as claimed in claim 1, wherein the composite metal seal has a longitudinal axis, and the sealing surface is tapered with respect to the longitudinal axis.

7. The composite metal seal as claimed in claim 6, wherein the annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular sealing surface, the annular groove being rectangular in cross-section and having walls that are perpendicular to the tapered annular sealing surface.

8. A composite metal seal ring for effecting a fluid pressure seal with respective annular surfaces of first and second hub members, the composite metal seal ring comprising an annular core of relatively hard metal, a first annular region of relatively soft metal integrally bonded to the annular core of relatively hard metal, and a second annular region of relatively soft metal integrally bonded to the annular core of relatively hard metal, the first annular region of relatively soft metal having a

first annular surface for mating with the annular surface of the first hub member to effect a fluid pressure seal with the first hub member, and the second annular region of relatively soft metal having a second annular surface for mating with the annular surface of the second hub member to effect a fluid pressure seal with the second hub member, wherein the two annular regions of relatively soft metal are displaced from each other along a longitudinal axis of the composite metal seal ring.

9. The composite metal seal ring as claimed in claim 8, wherein the the first annular region of relatively soft metal has a thickness in said radial direction of at least one-eighth of an inch, and the second annular region of relatively soft metal has a thickness in said radial direction of at least one-eighth of an inch.

10. The composite metal seal ring as claimed in claim 8, wherein the annular core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the first second annular region of relatively soft metal, and the annular core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the second annular region of relatively soft metal.

11. The composite metal seal ring as claimed in claim 8, wherein the first annual region of relatively soft metal is welded onto the annular core of relatively hard metal, and the relatively soft metal of the second annular region of relatively soft metal is welded onto the annular core of relatively hard metal.

12. The composite metal seal ring as claimed in claim 8, wherein the first annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular surface of the first annular region of relatively soft metal, and the second annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular surface of the second annular region of relatively soft metal.

13. The composite metal seal ring as claimed in claim 8, wherein the composite metal seal ring has a longitudinal axis, and the annular surface of the first annular region of relatively soft metal is tapered with respect to the longitudinal axis to have a varying radius that is smallest away from the second annular region of relatively soft metal and that is largest toward the second annular region

of relatively soft metal, and the annular surface of the second annular region of relatively soft metal is tapered with respect to the longitudinal axis to have a varying radius that is smallest away from the first annular region of relatively soft metal and that is largest toward the first annular region of relatively soft metal.

14. The composite metal seal ring as claimed in claim 13, wherein the first annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular surface of the first annular region of relatively soft metal, the annular groove in the first annular region of relatively soft metal being rectangular in cross-section and having walls that are perpendicular to the tapered annular surface of the first annular region of relatively soft metal, and

wherein the second annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular surface of the second annular region of relatively soft metal, the annular groove in the second annular region of relatively soft metal being rectangular in cross-section and having walls that are perpendicular to the tapered annular surface of the second annular region of relatively soft metal.

15. A composite metal seal having a core of relatively hard metal and at least one annular region of relatively soft metal providing an annular sealing surface, wherein the composite metal seal ring has been manufactured by a process which includes:

(a) welding an overlay of the relatively soft metal onto a workpiece of the relatively hard metal; and

(b) machining the overlay of the relatively soft metal on the workpiece of the relatively hard metal to form the annular sealing surface.

16. The composite metal seal as claimed in claim 15, wherein the process used for manufacturing the composite metal seal ring further included machining the relatively hard metal of the workpiece after the welding of the overlay of the relatively soft metal.

17. A method of manufacturing a composite metal seal having a core of relatively hard metal and at least one

annular region of relatively soft metal providing an annular sealing surface, said method comprising:

a) welding an overlay of the relatively soft metal onto a workpiece of the relatively hard metal; and

b) machining the overlay of the relatively soft metal on the workpiece of the relatively hard metal to form the annular sealing surface.

18. The method as claimed in claim 17, wherein the relatively hard metal is also machined after the welding of the overlay of the relatively soft metal.

19. The method as claimed in claim 17, wherein the overlay of the relatively soft metal is also machined to produce a groove in the overlay of the relatively soft metal on the workpiece.

20. The method as claimed in claim 17, wherein the overlay of the relatively soft metal is deposited onto the workpiece by using a gas-tungsten-arc-welding (GTAW) process as the workpiece is turned.